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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,946	01/08/2002	Yichuan Pan	ENCAD.126A	4449

7590 07/13/2004

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EXAMINER

DO, AN H

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/042,946

Applicant(s)

PAN ET AL.

Examiner

An H. Do

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address **34Y5X**
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1 April 2004. 742Y
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 18-25, 27 and 28 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 19-21 and 28 is/are allowed.
6) ☒ Claim(s) 1-5, 7, 8, 12-15, 18, 22-25 and 27 is/are rejected.
7) ☒ Claim(s) 6 and 9-11 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s) _____ te. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The Amendment filed on 01 April 2004 has been acknowledged.

Allowable Subject Matter

1. The indicated allowability of claims 1-15, 18, 22-25 and 27 is withdrawn in view of the newly discovered reference(s) to Wade et al (US 6,315,381), . Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5, 7, 8, 12-15, 18, 22-25 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Wade et al (US 6,315,381).

Wade et al disclose in Figures 1 and 2 the following claimed features:

Regarding claim 1, in an ink jet printer (Figure 1, element 10) comprising a printhead cartridge (12), said printhead cartridge (12) having a printhead (22) comprising a plurality of jets (column 4, line 29) thereto, a method of testing said printhead (22), said method comprising: storing (column 4, lines 22-25) in a memory element (31) on said printhead cartridge (12) a first set of jet characteristics (calibration information) of said printhead, wherein said first set of characteristics is indicative of the

performance of said plurality of jets; testing (column 3, lines 40-41) said printhead cartridge (12) to generate a second set of jet characteristics (operating conditions); and comparing (column 3, lines 41-44) said second set of jet characteristics (operating conditions) with said first set of jet characteristics (calibration information).

Regarding claim 2, further including adjusting (column 3, lines 41-44) a printer parameter to optimize said printer (10) for said cartridge (12) based on said comparison.

Regarding claim 3, wherein said first and second set of characteristics are resistance values (column 8, lines 50-57) of resistors (Figure 2, elements 44) on said printhead (12).

Regarding claim 4, wherein said first set of characteristics comprises at least maximum and minimum expected resistance values (column 6, lines 36-42).

Regarding claim 5, wherein said second set of characteristics comprises resistance values (column 8, lines 53-55) for a plurality of jet resistors (4).

Regarding claim 7, wherein said first set of characteristics is stored during the manufacturing process of said printhead cartridge (column 4, lines 22-25).

Regarding claim 8, wherein said printhead cartridge (12) is tested upon installation in said printer to generate said second set of characteristics (column 8, lines 53-55).

Regarding claims 12 and 22, wherein said first and second set of characteristics are selected from the group consisting of: dot quality, line quality, drop quality or color-to-color alignment (column 1, lines 26-28).

Regarding claim 13, wherein the printhead cartridge (12) resides on a movable carriage (not shown in drawings but known for removably replaceable, column 4, line 17).

Regarding claim 14, wherein said second set of characteristics is compared with said first set of characteristics to determine if said printer is optimized for said cartridge (column 8, lines 53-67).

Regarding claim 15, a printhead cartridge (12) comprising: a housing (not shown in drawings but known as the frame); a printhead (22) mounted to said housing and including a plurality of jets (column 4, line 29) thereon; and an integrated circuit (30, 32, Figure 1) mounted to the housing, said integrated circuit comprising a memory element (31), wherein said memory element (31) stores at least one set of jet characteristics, including maximum and minimum resistance values (column 6, lines 36-42) of resistors (44) on said printhead (22).

Regarding claim 18, further containing a plurality of electrical contacts (column 4, lines 16-20) configured to electrically connect said integrated circuit (30, 32) with a processor (14), wherein said processor compares said second set of characteristics with said first set of characteristics (column 4, lines 5-13).

Regarding claim 23, a printer (10) comprising: a cartridge (12), said cartridge comprising; a housing (not shown in drawings but known as the frame); a printhead (22) mounted to said housing and including a plurality of jets (column 4, line 29) thereon; an integrated circuit (30, 32, Figure 1) mounted to housing, said integrated circuit comprising a memory element (31), wherein said memory element (31) stores a first set

of characteristics of said plurality of jets, wherein said first set of characteristics comprises maximum and minimum expected resistance values (column 6, lines 36-42) of resistors (44) on said printhead cartridge (12); a memory (19), wherein said memory stores a second set of characteristics of the plurality of jets, wherein said second set of characteristics comprises measured resistance values (column 3, lines 40-44) for the plurality of jet resistors (44); and a processor (14) connected to the integrated circuit (30, 32) by a plurality of electrical contacts (column 4, lines 16-20), wherein said processor (14) compares said second set of characteristics with said first set of characteristics (column 4, lines 5-13).

Regarding claim 24, a method of detecting malfunctioning jets of an ink jet printhead cartridge (12) comprising: storing (column 4, lines 22-25) at least one jet resistance value (column 6, lines 28-32) in a memory (31) on said cartridge (12), and comparing (column 8, lines 59-67) a measured resistance value (column 8, lines 53-55) to said stored value.

Regarding claim 25, a printhead cartridge (12) comprising: a housing (not shown in drawings but known as the frame); a printhead (22) mounted to said housing and including a plurality of jets (column 4, line 29) thereon; and an integrated circuit (30, 32, Figure 1) mounted to the housing, said integrated circuit comprising a memory element (31), wherein said memory element (31) stores at least one set of resistance values comprising a first set of characteristics including maximum and minimum expected resistance values (column 6, lines 28-42) for resistors (44) on said printhead (22).

Regarding claim 27, In an ink jet printer (Figure 1, element 10) comprising a printhead cartridge (12), said printhead cartridge (12) having a printhead (22) comprising a plurality of jets (column 4, line 29) thereto, a method of testing said printhead (22), said method comprising: storing (column 4, lines 22-25) in a memory element (31) a first set of jet characteristics comprising a plurality of resistance values (column 6, lines 28-32) for resistors (44) on said printhead (22), wherein said first set of characteristics is indicative of the performance of said plurality of jets; testing (column 3, lines 40-41) said printhead cartridge (12) to generate a second set of jet characteristics comprising a plurality of resistance values (column 8, lines 53-55) for said resistors (44); comparing (column 8, lines 53-55) said second set of jet characteristics with said first set of jet characteristics; and adjusting (column 8, lines 59-67) a printer parameter to optimize said printer (10) for said cartridge (12) based on said comparison.

Allowable Subject Matter

4. Claims 19-21 and 28 are allowed.
5. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claim 19 is the inclusion of the limitation of a printhead cartridge that includes an integrated circuit comprising a memory element, wherein said memory element stores at least one set of characteristics including capacitance and/or resonance frequencies of piezo elements on said printhead. It is this limitation found in the claims, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 20 is the inclusion of the limitation of a printhead cartridge that includes an integrated circuit comprising a memory element, wherein said memory element stores at least one set of characteristics including at least expected capacitance values for piezo elements on said printhead. It is this limitation found in the claims, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 21 is the inclusion of the limitation of a printhead cartridge that includes an integrated circuit comprising a memory element, wherein said memory element stores at least one set of characteristics including resonance frequency values for piezo elements on said printhead. It is this limitation found in the claims, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 28 is the inclusion of the limitation of said memory element stores a first set of characteristics of said plurality of jets, wherein said first set of characteristics comprises expected capacitance values for the piezo elements on said printhead. It is this limitation found in the claims, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6. Claims 6 and 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claim 6 is the inclusion of the limitation of wherein comparing said second set of characteristics with said first set of characteristics includes comparing the resistance of a jet resistor with the maximum and minimum expected resistance value for the jet. It is this limitation found in the claims, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 9 is the inclusion of the limitation of wherein said first and second set of characteristics are capacitance and/or resonance frequencies of piezo elements on said printhead. It is this limitation found in the claims, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Haflinger et al (US 6,199,969) disclose a method and system for detecting nonfunctional elements in an inkjet printhead. Murray et al (US 5,610,635) disclose a printer having a cartridge containing ink, electrical conductors and a memory

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element for storing information. Cornell (US 6,467,864) discloses a system for providing an optimum energy pulse to a resistive heating element in an inkjet printhead.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to An H. Do whose telephone number is 571-272-2143.

The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



AD
July 1, 2004

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7/04, Primary